Natural Heritage & Endangered Species Program

Commonwealth of Massachusetts
Division of Fisheries & Wildlife
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MASSACHUSETTS ENDANGERED WILDLIFE

Yellow Lamp Mussel
(Lampsilis cariosa)

DESCRIPTION: The Yellow Lamp Mussel, also known as the Yellow River-mucket, is a large distinctive species of freshwater mussel. The species is sexually dimorphic; male shells are more elongate and elliptical in outline, while female shells are shorter, higher, and more distinctly ovoid in outline. Adult females are about 96 mm (3.9 inches) long, 71 mm (2.9 in.) high, and 44 mm (1.8 in.) wide; adult males are approximately 122 mm (5 in.) long, 80 mm (3.2 in.) high, and 51 mm (2.1 in.) wide, but may attain a maximum length of 130 mm (5.2 inches). The posterior end of the shell is roundly pointed in males but is truncated in females. The anterior end of the shell is rounded in both sexes. The Yellow Lamp Mussel's shell has a moderately smooth surface, but possesses numerous concentric lines of growth that are formed as the mussel grows. The elevated knob (umbo) on the shell delineates the youngest portion of the mussel's shell. The Yellow Lamp Mussel's fully developed, articulated hinge teeth are used to interlock the shell valves together.

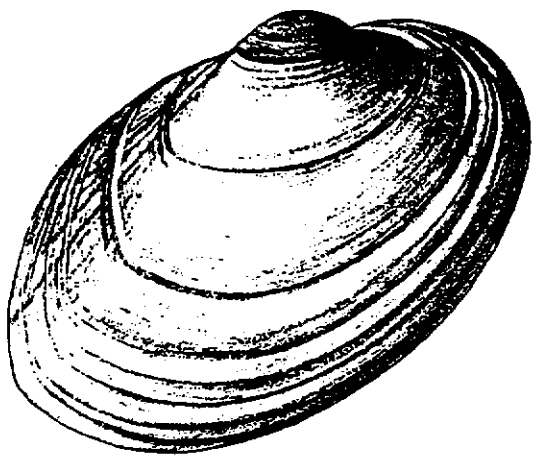
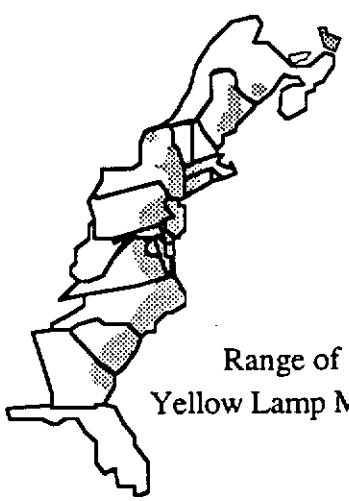
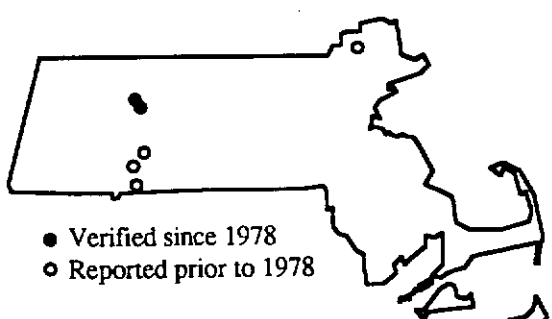


Illustration from J.B. Burch.1973. Freshwater Unionacean Clams (Mollusca:Pelecypoda) of North America. U.S. EPA

SIMILAR SPECIES: The Yellow Lamp Mussel can be distinguished from other mussel species in Massachusetts by its broad ovoid shape and the bright yellow color of the outer part of its shell. The only other species of mussel which could be confused with Lampsilis cariosa is Leptodea ochracea (the tidewater mucket), which is similarly shaped but is smaller in size (up to 80 mm, or 3 inches, in length), and its shell is thinner, less smooth, and copper, brassy, or pinkish in appearance. The tidewater mucket is found only in large ponds and does not occur in Massachusetts in the same habitat as the Yellow Lamp Mussel.



Range of
Yellow Lamp Mussel



● Verified since 1978
○ Reported prior to 1978

Massachusetts Distribution by Town

RANGE: The Yellow Lamp Mussel has been documented in major rivers along the Atlantic Coast, from the Sydney River in Nova Scotia to the Ogeechee River in Georgia.

HABITAT IN MASSACHUSETTS: The Yellow Lamp Mussel inhabits shoals and riffles in sandy-bottomed, large fast-flowing rivers, and is occasionally found in ponds, but not in Massachusetts. Historically, it was found in the Merrimack River near Haverhill and throughout the Connecticut River. A small stretch of the Connecticut River from Sunderland to Deerfield is thought to be the only remaining site in Massachusetts where the Yellow Lamp Mussel may still be found.

LIFE CYCLE: Yellow Lamp Mussels are bradytictic (long-term breeders); females carry developing larvae in their gills throughout the year, except for the summer, when reproduction occurs. Male mussels release their sperm into the river water; some of the sperm will enter the female mussels through openings in the shell and fertilize the eggs. Eggs are deposited into the gills of the female parent and are brooded until the following spring.

As with all other North American species of freshwater mussels, Lampsilis cariosa produces glochidia larvae, which are obligate fish parasites during early development. Once the eggs hatch in spring, the glochidia are released to seek out suitable fish hosts to complete their transformation into juvenile mussels, a process which takes 3 to 12 weeks. The host fish for this mussel is unknown, but may be a species of sunfish.

The Yellow Lamp Mussel burrows through the mud at the river bottom by alternately contracting and extending its muscular, tongue-like foot. It feeds by drawing in water through two openings in the rear of the shell and using its gills to strain out microorganisms and other food particles from the water.

POPULATION STATUS IN MASSACHUSETTS: The Yellow Lamp Mussel is listed as an Endangered Species in Massachusetts; there is only one recent (post-1978) site and four historic sites where it has been documented in the state. This species may be extirpated from Massachusetts. The last live specimen was observed in 1976, but fresh shells were located in the Connecticut River in 1982. The Yellow Lamp Mussel has been extirpated from the Merrimack River, where no living specimens or shells have been collected since the mid-nineteenth century.

The principal reason for the decline of the Yellow Lamp Mussel is thought to be pollution. The two rivers which have supported the Yellow Lamp Mussel have been subjected to organic and inorganic pollution for many years, as well as habitat destruction through channelization and rip-rapping of banks, and the construction of many dams. Severe alterations of the flow and water level of rivers (such as the Connecticut River) by power-generating dams is a possible threat because shoals which may contain populations of the Yellow Lamp Mussel are exposed for a considerable amount of time during periods of low flow.

Improvement and maintenance of water quality where this species occurs is critical to prevent its extirpation in Massachusetts. More survey work is needed to search for new occurrences and to monitor present populations and water quality. In addition, research is needed to determine the host fish species used by the glochidia larvae.